

Figure 13

Figure 14 is a schematic diagram of a multi-output current source circuit. The circuit is powered by a positive supply voltage  $V_{cc}$  and a negative supply voltage  $V_{ee}$ . It consists of ten MOSFETs, labeled M1 through M10, and a diode D1. The MOSFETs are arranged in five pairs, each pair connected to a specific output terminal. The output terminals are labeled OUT1+, OUT1-, OUT2+, OUT2-, OUT3+, OUT3-, OUT4+, OUT4-, OUT5+, and OUT5-. The circuit is biased by five current sources, labeled I1 through I5, which are connected to the gates of the MOSFETs. The current sources I1 through I4 are connected to the gates of the MOSFETs in pairs (M1, M6), (M2, M7), (M3, M8), and (M4, M9) respectively. The current source I5 is connected to the gates of the MOSFETs M5 and M10. The MOSFETs M1, M2, M3, and M4 are connected to the positive supply voltage  $V_{cc}$  through their drains. The MOSFETs M6, M7, M8, and M9 are connected to the negative supply voltage  $V_{ee}$  through their sources. The MOSFETs M5 and M10 are connected to the positive supply voltage  $V_{cc}$  through their drains. The MOSFETs M6, M7, M8, and M9 are connected to the negative supply voltage  $V_{ee}$  through their sources. The diode D1 is connected between the positive supply voltage  $V_{cc}$  and the negative supply voltage  $V_{ee}$ , with its cathode to  $V_{cc}$  and its anode to  $V_{ee}$ . The current  $I_{out}$  is the current flowing through the diode D1.

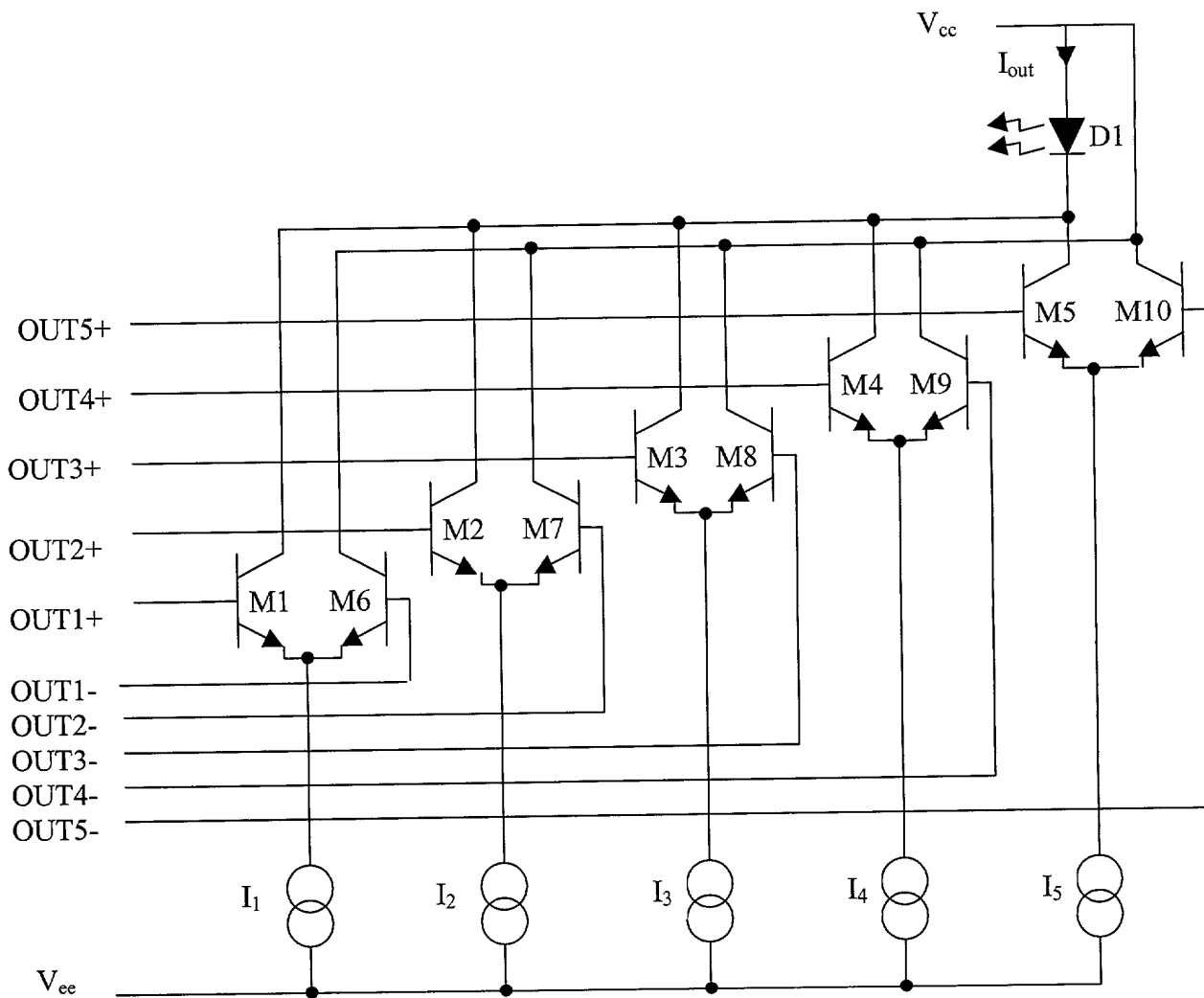


Figure 14

Figure 15

